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The Mineral Industry of Spain

UNITED STATES DEPARTMENT OF THE INTERIOR

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UNITED STATES DEPARTMENT OF THE INTERIOR • Manuel J. Lujan, Jr., Secretary

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The Mineral Industry of Spain

By John C. Panulas[1]

Spain was the world's largest producer of slate in 1987. In addition, the country was a leading world producer of feldspar, fluorspar, kyanite, magnesite, natural sodium sulfate, and potash. Among the European Economic Community (EEC) members, Spain was the organization's largest producer of mined zinc, second largest producer of mined tin, third largest producer of mined lead, and eighth largest producer of mined copper and cadmium. Moreover, Spain continued as the EEC's sole producer of mercury, natural sodium sulfate, and tantalite.

PRODUCTION

The mineral industry in Spain operated in numerous regions throughout the country. The Government maintained a majority position in many of the mining enterprises. Among the prominent companies were Empresa Nacional del Aluminio S.A., which produced aluminum; Empresa Nacional Hulleras del Norte S.A., which produced bituminous coal; Rio Tinto Minera S.A. (RTM), which produced copper ore and refined copper; Sociedad Minera y Metallúrgica de Peñarroya de España (Peñarroya), which produced lead ore and primary lead; Minas de Almadén y Arrayanes S.A. (MAYASA), which produced mercury; Empresa Nacional Siderúrgica S.A. (ENSIDESA) and Altos Hornos de Vizcaya S.A. (AHV), which produced steel; and Asturiana de Zinc S.A., which produced zinc ore and primary zinc.

Table 1.—Spain: Production of mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1983	1984	1985	1986[p]	1987[e]
METALS					
Aluminum:					
Bauxite	5,208	r7,273	2,427	e7,000	3,200
Alumina	737,000	741,569	724,700	e725,000	768,000
Metal:					
Primary	357,614	380,830	370,118	e354,400	341,000
Secondary	36,000	40,600	e38,000	e35,000	48,200
Antimony, mine output, Sb content	489	583	248	e200	200
Cadmium metal	278	290	268	247	300
Copper:					
Mine output, Cu content	49,964	63,105	55,486	51,084	15,000
Metal:					
Blister:					
Primary	100,000	97,000	88,000	e90,000	90,000
Secondary	18,000	30,000	40,000	e40,000	48,000
Total	118,000	127,000	128,000	e130,000	138,000
Refined:					
Primary	137,600	117,400	101,700	e113,200	98,800
Secondary	21,000	39,000	50,000	e45,000	52,000
Total	158,600	156,400	151,700	e158,200	150,800
Gold, mine output, Au content troy ounces	162,296	123,330	185,524	167,184	148,000
Iron and steel:					
Iron ore and concentrate (including byproduct concentrate):					
Gross weight thousand tons	7,449	7,961	6,463	6,054	6,100
Iron content do.	3,512	3,558	2,926	2,761	2,800
Metal:					
Pig iron do.	5,398	5,338	5,477	4,803	4,800
Ferroalloys, electric-furnace do.	253	291	e300	e300	300
Steel:					
Crude do.	12,731	13,484	14,235	11,977	11,900
Castings and forgings do.	156	156	138	e150	140
Total do.	12,887	13,640	14,373	12,127	13,040
Semimanufactures do.	10,787	10,703	11,050	e11,000	11,000
Lead:					
Mine output, Pb content	82,453	96,638	85,636	82,057	84,400
Metal:					
Primary	107,800	110,088	112,800	88,000	77,000
Secondary	36,000	49,912	43,300	42,000	40,000
Mercury:					
Mine output, Hg content 76-pound flasks	43,250	22,680	25,333	79,987	40,000
Metal do.	41,075	44,090	45,042	42,653	43,000
Silver, mine output, Ag content thousand troy ounces	1,496	4,999	9,482	9,298	5,710
Tantalum minerals (tin byproduct):					
Gross weight kilograms	47,000	31,950	18,300	12,500	10,000
Tantalum content do.	15,066	9,739	4,496	3,071	2,500
Tin:					
Mine output, Sn content	444	438	637	296	400
Metal, primary	3,700	4,400	3,900	3,500	3,600
Titanium dioxide[e]	35,000	34,000	38,000	35,000	36,000
Tungsten, mine output, W content	517	565	458	495	350
Uranium, mine output, U_3O_8 content	283	366	308	376	300
Zinc:					
Mine output, Zn content	167,715	230,378	234,695	233,307	235,000
Metal, primary and secondary	189,900	207,400	213,300	213,600	208,800
INDUSTRIAL MINERALS					
Barite	52,410	68,919	67,512	49,678	67,000
Bromine[e]	330	300	350	280	300
Cement, hydraulic, other than natural thousand tons	30,632	25,435	24,197	24,201	22,400
Clays:					
Attapulgite	44,654	43,907	59,697	67,820	70,000
Bentonite	82,530	72,582	90,239	114,972	100,000
Kaolin, marketable:					
Crude	63,480	56,640	96,533	259,572	200,000
Washed	191,632	262,633	317,186	314,094	300,000
Refractory, not further described	453,952	516,166	449,226	549,457	550,000
Other thousand tons	10,262	9,006	9,598	9,244	10,000
Diatomite and tripoli	55,638	73,013	96,251	128,050	100,000
Feldspar	116,137	136,943	136,190	135,526	137,000

See footnotes at end of table.

Table 1.—Spain: Production of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1983	1984	1985	1986[p]	1987[e]
INDUSTRIAL MINERALS —Continued					
Fluorspar:					
Gross weight:					
Acid-grade	190,749	253,221	266,774	257,108	260,000
Metallurgical-grade	41,585	42,445	38,835	25,352	25,000
Total	232,334	295,666	305,609	282,460	285,000
CaF_2 content:					
Acid-grade	190,749	246,121	258,561	250,374	250,000
Metallurgical-grade	41,585	33,710	31,140	22,404	25,000
Total	232,334	279,831	289,701	272,778	275,000
Gypsum and anhydrite, crude thousand tons	5,620	5,365	5,525	5,562	5,500
Kyanite and related materials	4,486	3,000	2,800	3,304	3,000
Lime, hydrated and quicklime[e] thousand tons	1,000	[2]1,088	1,100	1,200	1,200
Magnesite:					
Calcined	173,876	169,191	173,927	177,681	180,000
Crude	597,137	691,542	692,196	[e]700,000	710,000
Mica	1,300	990	727	325	250
Nitrogen: N content of ammonia thousand tons	506	670	600	[e]600	650
Pigments, mineral:					
Ocher	9,879	10,316	10,293	7,697	8,000
Red iron oxide[e]	20,000	20,000	21,000	20,000	20,000
Potash salts, K_2O equivalent	656,726	677,201	658,863	794,586	750,000
Pumice	1,002,301	829,827	849,440	968,116	950,000
Pyrite including cuprous, gross weight thousand tons	2,306	2,329	2,676	2,614	2,700
Salt:					
Rock including byproduct from potash works do.	2,008	2,156	2,160	2,101	2,100
Marine and other do.	1,149	1,233	1,079	1,006	1,000
Sand and gravel: Silica sand[3] do.	2,100	2,267	2,467	2,403	2,400
Sepiolite	345,932	237,570	341,193	455,194	400,000
Sodium compounds, n.e.s.:					
Carbonate, manufactured[e] thousand tons	500	550	550	525	550
Sulfate:					
Natural:					
Glauberite, Na_2SO_4 content	130,566	214,198	243,745	288,714	290,000
Thenardite, Na_2SO_4 content	132,513	152,829	237,502	162,197	160,000
Manufactured[e]	170,000	170,000	150,000	150,000	160,000
Stone:					
Calcareous:					
Chalk thousand tons	377	362	412	427	430
Dolomite do.	2,020	2,112	2,196	2,192	2,200
Limestone do.	84,080	77,468	74,173	77,050	78,000
Marble do.	685	623	798	955	1,000
Marl do.	6,346	5,772	5,043	5,326	5,400
Basalt do.	1,064	1,992	3,956	3,476	3,500
Granite do.	7,527	7,853	9,127	10,843	10,800
Ofite do.	1,044	1,212	1,225	1,050	1,000
Phonolite do.	449	472	559	593	600
Porphyry do.	461	475	795	715	700
Quartz do.	502	372	252	568	600
Quartzite do.	602	831	993	744	700
Sandstone do.	1,965	1,599	2,274	2,620	2,700
Serpentine do.	360	376	375	417	400
Other do.	23,659	23,055	25,243	26,660	26,000
Strontium minerals:					
Gross weight	34,500	27,000	42,500	34,500	34,500
SrO_4 content	31,740	24,840	39,100	31,740	31,740
Sulfur:					
S content of pyrites thousand tons	1,073	1,094	1,231	1,192	1,200
Byproduct:[e]					
Of metallurgy do.	120	125	115	105	110
Of petroleum do.	8	9	9	8	8
Of coal (lignite) gasification do.	3	3	2	2	2
Total do.	1,204	1,231	1,357	1,310	1,320
Talc and steatite	69,467	72,237	88,776	73,914	80,000
MINERAL FUELS AND RELATED MATERIALS					
Coal (marketable):					
Anthracite thousand tons	5,370	5,476	5,810	5,610	5,700
Bituminous do.	10,049	9,814	10,281	10,286	10,000
Lignite do.	24,524	24,303	23,572	22,425	22,000
Total do.	39,943	39,593	39,663	38,321	37,700

See footnotes at end of table.

Table 1.—Spain: Production of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1983	1984	1985	1986[p]	1987[e]
MINERAL FUELS AND RELATED MATERIALS —Continued					
Coke, metallurgical thousand tons	3,422	2,842	e3,000	e3,000	3,000
Gas, natural: Marketed million cubic feet	183	6,245	9,626	13,554	11,000
Peat	39,622	55,561	54,049	63,869	62,000
Petroleum:					
Crude thousand 42-gallon barrels	21,693	16,361	15,217	13,154	14,000
Refinery products:					
Liquefied petroleum gases do	12,597	14,964	13,642	e13,500	13,500
Naphtha do	18,606	23,709	24,973	e23,000	22,000
Gasoline, motor do	47,787	52,350	57,019	e50,000	50,000
Jet fuel do	16,968	18,160	19,312	e18,000	18,000
Kerosene do	1,418	1,860	3,309	e2,500	2,000
Distillate fuel oil do	74,771	78,067	85,887	e80,000	80,000
Residual fuel oil do	108,391	108,238	94,719	e105,000	100,000
Other do	45,927	28,420	46,267	e37,000	36,000
Refinery fuel and losses do	10,405	1,112	5,582	e7,000	7,000
Total do	336,870	326,880	350,710	e336,000	328,500

eEstimated. pPreliminary. rRevised.
[1]Table includes data available through July 31, 1988.
[2]Reported figure.
[3]Includes sand obtained as a byproduct of feldspar and kaolin production.

TRADE

Spain incurred a trade deficit in 1987 of nearly $15 billion,[2] an increase of 150% over that of 1986. The deficit in nonenergy raw materials increased by about 50% over that of 1986, to $920 million. Of that amount, approximately 85% consisted of metalliferous ores and scrap. Nonferrous metals incurred a net outflow of $53 million, while iron and steel products enjoyed a trade surplus of about $479 million. In trade with the EEC, however, iron and steel products reflected a negative balance of $245 million.

Especially significant was that the EEC limited to 935,000 tons the volume of exports of iron and steel Spain could send to other EEC nations, excluding Portugal. Shipments to that country could not exceed 100,000 tons.

Table 2.—Spain: Exports of mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
METALS				
Alkali and alkaline-earth metals:				
Alkali metals	1	--		
Alkaline-earth metals	(2)	--		
Alumium:				
Ore and concentrate	807	1,120	--	Portugal 1,118; Tunisia 2.
Oxides and hydroxides	16,525	42,744	--	Italy 14,214; Finland 9,823; Sweden 9,623.
Ash and residue containing aluminum	--	137	--	France 115; Portugal 22.
Metal including alloys:				
Scrap	42	557	317	West Germany 112; Switzerland 51.
Unwrought	208,384	146,388	6,501	Netherlands 91,118; Italy 14,731; Japan 7,830.
Semimanufactures	32,080	32,124	1,688	France 8,570; Portugal 3,378; Republic of Korea 2,776.
Antimony:				
Ore and concentrate	--	1	--	All to Portugal.
Oxides	5	8	--	All to Italy.
Metal including alloys, all forms	240	43	--	Netherlands 27; France 16.
Arsenic: Metal including alloys, all forms	(2)	NA		
Bismuth: Metal including alloys, all forms	(2)	--		

See footnotes at end of table.

Table 2.—Spain: Exports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
METALS —Continued				
Cadmium: Metal including alloys, all forms	209	230	20	Netherlands 210.
Chromium:				
Ore and concentrate	--	24	--	All to West Germany.
Oxides and hydroxides	225	109	--	Switzerland 46; Republic of South Africa 34; France 20.
Metal including alloys, all forms	(2)	2	--	All to France.
Cobalt:				
Oxides and hydroxides	27	1	--	All to Tunisia.
Metal including alloys, all forms	104	63	--	West Germany 45; Netherlands 10; Italy 8.
Columbium and tantalum:				
Ash and residue containing columbium and/or tantalum	508	--		
Metal including alloys, all forms, tantalum	4	3	(2)	Mainly to West Germany.
Copper:				
Ore and concentrate	74,975	59,397	--	Canada 23,299; Finland 19,126; Japan 7,438.
Matte and speiss including cement copper	1,959	3,134	--	Belgium-Luxembourg 1,874; West Germany 1,256; United Kingdom 4.
Oxides and hydroxides	(2)	18	18	
Sulfate	996	1,503	18	France 919; West Germany 439; Malaysia 40.
Ash and residue containing copper	--	1,465	--	United Kingdom 1,366; United Arab Emirates 98.
Metal including alloys:				
Scrap	569	607	--	Sweden 279; West Germany 98; Netherlands 94.
Unwrought	72,503	66,464	(2)	United Kingdom 17,083; Netherlands 15,650; Italy 13,047.
Semimanufactures	15,955	12,288	116	United Kingdom 2,736; Portugal 2,612; Italy 870.
Gold:				
Waste and sweepings value, thousands	--	$2	--	All to France.
Metal including alloys, unwrought and partly wrought do.	$65,299	$9,068	--	Switzerland $7,208; United Kingdom $1,112; Cuba $354.
Iron and steel:				
Iron ore and concentrate:				
Excluding roasted pyrite thousand tons	1,879	1,791	--	Netherlands 594; France 508; United Kingdom 403.
Pyrite, roasted do.	4	5	--	France 2; Gabon 1; United Kingdom 1.
Metal:				
Scrap	1,251	1,350	7	West Germany 692; Belgium-Luxembourg 453; Sweden 81.
Pig iron, cast iron, related materials	46,529	47,115	3	Italy 6,358; Denmark 5,663; Nigeria 4,919.
Ferroalloys:				
Ferrochromium	15,939	9,909	--	United Kingdom 2,925; West Germany 2,601; France 1,476.
Ferromanganese	26,781	22,084	3,562	Italy 3,846; West Germany 3,391.
Ferromolybdenum	2,079	2,389	--	Netherlands 1,844; Sweden 273; Republic of South Africa 126.
Ferrosilicomanganese	7,074	7,077	2,857	Italy 953; Japan 882.
Ferrosilicon	5,980	3,620	--	West Germany 2,092; United Kingdom 636; Netherlands 500.
Silicon metal	7,247	3,273	211	Japan 2,704; Sweden 273.
Unspecified	1,520	3,951	1,183	Netherlands 2,064; Sweden 273.
Steel, primary forms thousand tons	1,154	609	50	India 96; Morocco 91; Turkey 72.
Semimanufactures:				
Bars, rods, angles, shapes, sections do.	4,279	2,762	235	China 600; West Germany 218.
Universals, plates, sheets do.	1,181	1,288	224	U.S.S.R. 184; West Germany 71.
Hoop and strip do.	39	65	6	Syria 17; U.S.S.R. 7; France 2.
Rails and accessories do.	(2)	2	--	Venezuela 1.
Wire do.	45	70	1	Portugal 11; Libya 10; China 8.
Tubes, pipes, fittings do.	614	423	40	U.S.S.R. 67; West Germany 39.
Castings and forgings, rough do.	15	17	2	Italy 4; France 2; West Germany 2.

See footnotes at end of table.

Table 2.—Spain: Exports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
METALS —Continued				
Lead:				
Ore and concentrate	40,769	42,215	--	United Kingdom 11,704; U.S.S.R. 9,869; Belgium-Luxembourg 9,555.
Oxides	753	499	--	Morocco 184; Portugal 154; Australia 126.
Ash and residue containing lead	25,546	29,606	--	Portugal 21,330; Belgium-Luxembourg 7,022; France 1,220.
Metal including alloys:				
Scrap	14	122	--	Italy 95; Portugal 25; United Kingdom 2.
Unwrought	56,016	22,502	--	Italy 9,726; Turkey 5,672; Yugoslavia 3,000.
Semimanufactures	121	207	--	West Germany 125; Italy 31; Portugal 24.
Lithium: Oxides and hydroxides	(2)	1	--	All to France.
Magnesium: Metal including alloys:				
Scrap	--	14	--	Do.
Unwrought	--	648	--	France 627; Netherlands 21.
Semimanufactures	40	34	--	France 31; Cuba 2.
Manganese:				
Oxides	2,204	2,231	--	Iraq 1,360; Nigeria 500; Czechoslovakia 240.
Metal including alloys, all forms	1	2	--	All to Cuba.
Mercury 76-pound flask	27,318	31,610	5,858	United Kingdom 5,858; Argentina 4,930.
Molybdenum: Metal including alloys:				
Scrap	(2)	--		
Semimanufactures	1	(2)	--	Mainly to Portugal.
Nickel:				
Matte and speiss	(2)	--		
Oxides and hydroxides	10	2	--	All to Denmark.
Ash and residue containing nickel	139	86	--	France 22; United Kingdom 22; Netherlands 21.
Metal including alloys:				
Scrap	164	97	--	West Germany 80; France 16.
Unwrought	--	13	--	Algeria 8; United Kingdom 5.
Semimanufactures	9	104	9	Mauritania 67; West Germany 12; Italy 10.
Platinum-group metals:				
Waste and sweepings value, thousands	--	$419	--	All to France.
Metals including alloys, unwrought and partly wrought do.	$2,689	$1,621	--	France $717; West Germany $411; Argentina $327.
Rare-earth metals including alloys, all forms	--	3	--	Republic of South Africa 1; Switzerland 1.
Silicon, high-purity	(2)	1	--	Mainly to Cuba.
Silver:				
Ore and concentrate[3] value, thousands	--	$38	--	All to Belgium-Luxembourg.
Waste and sweepings do.	--	$1,896	$1	United Kingdom $1,834; France $61.
Metal including alloys, unwrought and partly wrought do.	$29,062	$9,825	$42	United Kingdom $5,274; Switzerland $1,555; Netherlands $1,084.
Tin:				
Ore and concentrate	5	--		
Oxides	12	(2)	--	All to Morocco.
Ash and residue containing tin	339	--		
Metal including alloys:				
Scrap	56	--		
Unwrought	203	226	--	Netherlands 130; France 43; Portugal 40.
Semimanufactures	49	278	--	Panama 269; Italy 5; Nicaragua 3.
Titanium:				
Ore and concentrate	(2)	125	--	Cuba 123; Portugal 2.
Oxides	10,815	1,904	889	Canada 306; Japan 256.
Metal including alloys:				
Scrap	6	31	--	France 22; West Germany 8; Switzerland 1.
Unwrought	1	17	--	All to United Kingdom 17.
Semimanufactures	13	23	(2)	Italy 17; France 2; West Germany 2.

See footnotes at end of table.

Table 2.—Spain: Exports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
METALS —Continued				
Tungsten:				
Ore and concentrate	714	744	--	West Germany 495; Sweden 115; United Kingdom 84.
Metal including alloys:				
Scrap	(2)	1	--	Mainly to West Germany.
Unwrought	(2)	--	--	
Semimanufactures	3	(2)	--	Mainly to Cuba.
Uranium and/or thorium: Ore and concentrate	--	108	--	France 98; Mexico 10.
Vanadium:				
Oxides and hydroxides	--	15	--	All to Andorra.
Ash and residue containing vanadium	--	46	46	
Zinc:				
Ore and concentrate	119,509	126,443	--	Italy 52,114; Finland 25,888; France 13,128.
Oxides	2,029	2,197	--	West Germany 685; Belgium-Luxembourg 456; France 341.
Blue powder	829	598	--	U.S.S.R. 596; West Germany 1; Mexico 1.
Matte	144	196	--	Netherlands 100; Portugal 72; France 24.
Ash and residue containing zinc	10,147	2,387	--	West Germany 1,194; Belgium-Luxembourg 613; France 396.
Metal including alloys:				
Scrap	--	1	--	Mainly to Costa Rica.
Unwrought	127,214	94,199	25,473	Netherlands 42,776; China 4,577.
Semimanufactures	208	276	--	Mexico 175; France 46.
Zirconium:				
Ore and concentrate	300	110	--	Portugal 74; Mexico 26.
Metal including alloys, scrap	24	--		
Other:				
Ores and concentrates	3	24	--	All to Portugal.
Oxides and hydroxides	40	262	21	United Kingdom 74; Portugal 31; Hong Kong 30.
Ashes and residues	412	731	--	Belgium-Luxembourg 299; United Kingdom 246; Philippines 132.
INDUSTRIAL MINERALS				
Abrasives, n.e.s.:				
Natural: Corundum, emery, pumice, etc	1,747	2,085	(2)	West Germany 982; Portugal 272; France 236.
Artificial:				
Corundum	709	2,251	95	West Germany 1,406; United Kingdom 391; Portugal 125.
Silicon carbide	4,649	3,618	56	United Kingdom 1,382; France 874; West Germany 441.
Dust and powder of precious and semiprecious stones including diamond, value, thousands	$105	$30	$6	Mexico $10; Ireland $6.
Grinding and polishing wheels and stones	3,337	3,117	512	France 443; West Germany 309.
Asbestos, crude	189	194	--	Portugal 181; Morocco 13.
Barite and witherite	58,957	41,892	--	Italy 14,868; West Germany 11,748; Angola 7,621.
Boron materials:				
Crude natural borates	1,311	637	--	Portugal 586; West Germany 46; Netherlands 5.
Elemental	(2)	--		
Oxides and acids	9	2	--	France 1.
Cement, thousand tons	7,980	5,578	2,734	Algeria 455; Ivory Coast 445.
Chalk	2,669	2,969	--	Libya 1,500; Portugal 1,048; Morocco 258.
Clays, crude:				
Bentonite	29,045	33,258	--	Netherlands 12,594; Portugal 11,459; Libya 3,299.
Chamotte earth	350	1,493	--	West Germany 938; Morocco 200; Italy 96.
Fuller's earth	2,817	3,337	--	Netherlands 1,217; Egypt 1,094; Italy 603.
Kaolin	109,218	127,842	--	Italy 41,854; West Germany 21,269; Finland 18,324.
Unspecified	50,150	72,702	--	Netherlands 53,757; France 5,587; Portugal 3,226.

See footnotes at end of table.

Table 2.—Spain: Exports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
INDUSTRIAL MINERALS —Continued				
Cryolite and chiolite	--	1	--	All to Portugal.
Diamond:				
Gem, not set or strung value, thousands	$3,532	$236	--	Belgium-Luxembourg $96; Panama $61; France $60.
Industrial stones do	$1,036	$57	$12	Sweden $24; Ireland $6.
Diatomite and other infusorial earth	3,250	4,087	--	Belgium-Luxembourg 2,473; West Germany 366; France 310.
Feldspar, fluorspar, related materials:				
Feldspar	4,739	2,578	--	France 2,458; Morocco 120.
Fluorspar	148,978	171,600	29,203	Italy 31,707; Canada 28,037.
Unspecified	--	5	--	All to Tunisia.
Fertilizer materials:				
Crude, n.e.s	538	838	--	Andorra 340; France 224; Saudi Arabia 189.
Manufactured:				
Ammonia	40	(2)	NA	NA.
Nitrogenous	301,698	162,833	--	West Germany 81,310; France 25,446; Belgium-Luxembourg 25,295.
Phosphatic	1,488	1,017	--	Ireland 1,000; Andorra 17.
Potassic	562,261	488,900	--	France 106,847; Italy 76,810; Brazil 64,300.
Unspecified and mixed	136,216	133,212	--	Venezuela 42,525; China 25,006; Algeria 23,135.
Graphite, natural	42	126	--	Italy 98; France 22; United Kingdom 4.
Gypsum and plaster thousand tons	2,193	2,486	1,175	Denmark 186; Sweden 151.
Iodine	1	6	--	Switzerland 4; Cuba 1; Turkey 1.
Kyanite and related materials	50	49	--	Italy 48.
Lime	9,051	6,329	--	France 2,495; Equatorial Guinea 2,132; Cameroon 1,053.
Magnesium compounds:				
Magnesite, crude	620	8	--	All to Saudi Arabia.
Oxides and hydroxides	121,858	109,289	145	France 4,947; West Germany 1,416; unspecified 101,830.
Mica:				
Crude including splittings and waste	60	23	--	Cuba 21; Portugal 1.
Worked including agglomerated splittings	147	100	--	Italy 40; West Germany 21; Turkey 16.
Nitrates, crude	23	--	--	--
Phosphates, crude	24	404	--	United Kingdom 402; Andorra 2.
Phosphorus, elemental	(2)	9	--	All to Portugal.
Pigments, mineral:				
Natural, crude	--	34	--	Italy 24; Andorra 10.
Iron oxides and hydroxides, processed	10,120	9,881	723	United Kingdom 1,196; Algeria 800.
Potassium salts, crude	--	5,650	--	All to Portugal.
Precious and semiprecious stones other than diamond:				
Natural value, thousands	$176	$151	$6	Andorra $30; United Arab Emirates $29; Panama $28.
Synthetic do	$216	$460	$24	Switzerland $367; France $16.
Pyrite, unroasted	312,087	347,216	--	Belgium-Luxembourg 190,080; Turkey 90,678; Yugoslavia 27,906.
Salt and brine	893,973	511,152	128,236	Norway 57,214; Iceland 56,990.
Sodium compounds, n.e.s.:				
Carbonate, manufactured	114,197	137,821	701	Republic of South Africa 56,763; Belgium-Luxembourg 20,183; Argentina 18,098.
Sulfate, manufactured	140,947	NA		
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked	435,962	376,204	271	Italy 279,081; United Kingdom 58,068; France 12,091.
Worked	305,488	316,966	37,515	France 163,925; West Germany 47,559; United Kingdom 19,110.
Dolomite, chiefly refractory-grade	121,470	184,497	50,000	United Kingdom 128,923; Saudi Arabia 2,200.
Gravel and crushed rock	33,686	47,087	100	United Kingdom 34,127; Morocco 9,450; Andorra 1,292.
Quartz and quarzite	390,562	374,982	--	Norway 224,816; Italy 33,606; France 33,530.
Sand other than metal-bearing	182,879	269,363	--	Andorra 235,297; United Kingdom 20,296; Portugal 8,147.

See footnotes at end of table.

Table 2.—Spain: Exports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
INDUSTRIAL MINERALS —Continued				
Sulfur:				
Elemental:				
Crude including native and by-product	145	425	--	France 341; Morocco 52; Portugal 32.
Colloidal, precipitated, sublimed	34	76	--	All to France.
Dioxide	168	55	--	All to Portugal.
Sulfuric acid	182,661	482,245	63,609	Brazil 185,389; Belgium-Luxembourg 53,849.
Talc, steatite, soapstone, pyrophyllite	31,197	32,911	--	Belgium-Luxembourg 20,399; United Kingdom 4,835; Italy 3,206.
Vermiculite, perlite, chlorite	407	608	--	West Germany 403; Algeria 150; Austria 24.
Other:				
Crude	770,541	748,605	1,804	Belgium-Luxembourg 293,879; France 169,074; West Germany 88,609.
Slag and dross, not metal-bearing	205,195	115,878	2,025	France 67,627; Portugal 42,540.
MINERAL FUELS AND RELATED MATERIALS				
Asphalt and bitumen, natural	199	1,553	--	Portugal 1,282; Andorra 184; United Kingdom 79.
Carbon:				
Carbon black	17,857	16,420	--	France 8,813; West Germany 5,406; Italy 1,048.
Gas carbon	4,583	6,965	213	Morocco 3,544; Israel 2,110.
Coal:				
Anthracite	4,974	28	--	Portugal 25; Cameroon 3.
Bituminous	1	37	--	Italy 23; Andorra 12.
Briquets of anthracite and bituminous coal	(2)	1	--	All to West Germany.
Coke and semicoke	11,107	26,733	--	Sweden 8,556; West Germany 7,545; Portugal 4,990.
Peat including briquets and litter	229	56	--	All to Portugal.
Petroleum refinery products:				
Liquefied petroleum gas thousand 42-gallon barrels	1,077	2,075	--	Morocco 917; Netherlands 539; Senegal 186.
Gasoline do.	17,409	26,092	9,713	Netherlands 4,897; France 3,491.
Mineral jelly and wax do.	90	96	(2)	West Germany 46; Netherlands 21; Portugal 8.
Kerosene and jet fuel do.	5,701	12,030	1,978	Netherlands 4,644; Nigeria 1,538.
Distillate fuel oil do.	5,709	8,218	1,069	Netherlands 1,733; Mauritania 985; bunkers 1,288.
Lubricants do.	2,560	3,284	128	France 1,682; Italy 617; India 159.
Residual fuel oil do.	41,699	53,683	3,927	Netherlands 15,100; United Kingdom 5,192; France 4,876.
Bitumen and other residues do.	4,112	2,471	46	Algeria 492; Italy 318; France 259.
Bituminous mixtures do.	412	753	546	Portugal 98; Libya 52.
Petroleum coke do.	13	35	--	U.S.S.R. 17; Italy 16; Portugal 1.

NA Not available.
[1]Table prepared by Josef Plachy.
[2]Less than 1/2 unit.
[3]May include other precious metals.

Table 3.—Spain: Imports of mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986	
			United States	Other (principal)
METALS				
Alkali and alkaline-earth metals:				
Alkali metals	86	90	--	West Germany 53; France 17; Italy 16.
Alkaline-earth metals	68	48	1	France 20; Canada 17; U.S.S.R. 10.
Aluminum:				
Ore and concentrate thousand tons	1,589	1,431	--	Guinea 1,353; Guyana 29; China 27.
Oxides and hydroxides	25,235	22,302	239	France 11,000; West Germany 6,353; United Kingdom 3,379.
Ash and residue containing aluminum	11,668	17,028	306	West Germany 4,651; Austria 3,408; Italy 2,732.
Metal including alloys:				
Scrap	9,143	19,139	609	United Kingdom 7,757; France 6,282; Portugal 2,094.
Unwrought	10,656	21,814	1	Iceland 5,992; Romania 3,455; West Germany 3,149.
Semimanufactures	22,802	42,287	2,126	West Germany 9,236; Italy 6,235; France 5,307.
Antimony:				
Ore and concentrate	587	630	--	Thailand 353; Peru 162; Morocco 98.
Oxides	200	273	(2)	France 97; United Kingdom 61; Belgium-Luxembourg 59.
Metal including alloys, all forms	41	178	--	China 70; Thailand 39; United Kingdom 23.
Arsenic:				
Oxides and acids	118	182	--	France 110; Belgium-Luxembourg 72.
Metal including alloys, all forms	13	NA		
Beryllium: Metal including alloys, all forms	(2)	--		
Bismuth:				
Oxides and hydroxides	35	--		
Metal including alloys, all forms	59	83	(2)	Belgium-Luxembourg 34; United Kingdom 31; Mexico 7.
Cadmium: Metal including alloys, all forms	49	92	--	West Germany 53; Belgium-Luxembourg 38; Yugoslavia 1.
Chromium:				
Ore and concentrate	79,042	92,194	--	Albania 43,419; Republic of South Africa 27,173; Turkey 16,000.
Oxides and hydroxides	298	349	1	West Germany 267; China 40; United Kingdom 23.
Metal including alloys, all forms	29	40	1	West Germany 22; West Germany 15; Sweden 2.
Cobalt:				
Ore and concentrate	(2)	(2)	--	All from West Germany.
Oxides and hydroxides	97	113	10	Belgium-Luxembourg 51; Canada 21; Finland 15.
Metal including alloys, all forms	131	197	2	West Germany 53; Zaire 50; Finland 43.
Columbium and tantalum: Metal including alloys, all forms:				
Columbium (niobium)	1	(2)	--	Mainly from West Germany.
Tantalum	5	18	9	Netherlands 9.
Copper:				
Ore and concentrate	125,318	249,641	--	Papua New Guinea 80,631; Mexico 55,617; Morocco 54,640.
Matte and speiss including cement copper	3,126	2,217	--	France 612; Italy 503; Portugal 348.
Oxides and hydroxides	542	527	(2)	West Germany 214; Norway 131; Italy 118.
Sulfate	164	1,081	--	France 777; Portugal 259; Hungary 23.
Ash and residue containing copper	42,047	44,342	7,988	Brazil 26,680; Cuba 1,505.
Metal including alloys:				
Scrap	31,112	29,984	7,184	France 10,342; United Kingdom 2,540.
Unwrought	51,325	51,759	15	Chile 30,076; Belgium-Luxembourg 12,281; Iran 2,494.
Semimanufactures	36,379	63,239	352	France 15,387; Italy 14,267; Netherlands 9,002.
Germanium: Metal including alloys, all forms	(2)	(2)	(2)	
Gold:				
Waste and sweepings value, thousands	$148,330	$26,912	--	Switzerland $23,435; France $2,718; Netherlands $330.
Metal including alloys, unwrought and partly wrought do.	$15,644	$35,090	$341	Switzerland $14,748; Sweden $4,397; France $3,977.

See footnotes at end of table.

Table 3.—Spain: Imports of mineral commodities' —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986	
			United States	Other (principal)
METALS — Continued				
Iron and steel:				
Iron ore and concentrate:				
Excluding roasted pyrite thousand tons	5,023	4,287	(2)	Brazil 2,266; Australia 737; Venezuela 491.
Pyrite, roasted do	--	120	--	All from Belgium-Luxembourg.
Metal:				
Scrap do	6,146	4,342	648	United Kingdom 1,750; France 932.
Pig iron, cast iron, related materials	177,624	206,523	115	Brazil 70,944; Malaysia 32,234; Republic of South Africa 23,653.
Ferroalloys:				
Ferrochromium	46,615	71,373	23	Republic of South Africa 46,290; Finland 13,483; Zimbabwe 3,392.
Ferromanganese	1,260	6,636	--	Republic of South Africa 4,336; France 2,152; West Germany 123.
Ferromolybdenum	162	109	--	Belgium-Luxembourg 50; United Kingdom 39; Austria 15.
Ferronickel	7,908	24,851	--	Dominican Republic 6,999; France 6,382; New Caledonia 5,258.
Ferrosilicochromium	1,691	1,620	--	Zimbabwe 1,571; Yugoslavia 25; France 23.
Ferrosilicomanganese	1,516	1,393	--	Republic of South Africa 8,142; Portugal 3,000; Yugoslavia 250.
Ferrosilicon	5,299	11,998	--	Norway 4,195; Yugoslavia 2,698; France 2,470.
Silicon metal	65	17	--	West Germany 7; Netherlands 6; Norway 3.
Unspecified	3,479	10,841	384	France 8,763; West Germany 1,204; Italy 175.
Steel, primary forms	669,407	1,286,895	13,423	West Germany 328,451; France 324,606; Netherlands 208,022.
Semimanufactures:				
Bars, rods, angles, shapes, sections	145,391	226,772	209	West Germany 67,358; France 44,668; United Kingdom 35,794.
Universals, plates, sheets	469,283	864,578	1,518	West Germany 273,004; France 149,432; Belgium-Luxembourg 98,298.
Hoop and strip	81,564	128,182	85	West Germany 66,995; France 21,587; Italy 10,957.
Rails and accessories	1,484	3,439	--	Belgium-Luxembourg 1,537; United Kingdom 527; Austria 476.
Wire	12,152	23,345	79	Belgium-Luxembourg 9,593; France 4,447; Netherlands 2,339.
Tubes, pipes, fittings	41,429	90,841	3,617	France 34,334; West Germany 18,527; Italy 12,972.
Castings and forgings, rough	1,711	2,487	78	Italy 1,492; France 510; West Germany 207.
Lead:				
Ore and concentrate	66,862	50,320	--	Canada 14,824; Republic of South Africa 14,186; Italy 5,547.
Oxides	20	33	--	West Germany 27; United Kingdom 6.
Ash and residue containing lead	16,041	7,493	14	Belgium-Luxembourg 2,575; Italy 2,350; Canada 1,601.
Metal including alloys:				
Scrap	784	44	15	United Kingdom 16; France 5.
Unwrought	3,663	8,902	--	Morocco 4,164; France 3,336; Netherlands 336.
Semimanufactures	174	149	51	France 34; West Germany 28; Italy 19.
Lithium:				
Oxides and hydroxides	140	95	59	Yugoslavia 20; U.S.S.R. 10.
Metal including alloys, all forms	(3)	(3)	--	Mainly from United Kingdom.
Magnesium: Metal including alloys:				
Scrap	7	4	--	All from France.
Unwrought	1,505	2,390	1,477	Norway 526; France 254.
Semimanufactures	66	31	3	West Germany 16, Belgium-Luxembourg 9.
Manganese:				
Ore and concentrate, metallurgical-grade	299,032	244,300	--	Gabon 64,450; Ghana 33,115; Australia 17,786.
Oxides	757	1,471	4	Belgium-Luxembourg 553; Ireland 260; Greece 256.
Metal including alloys, all forms	466	676	184	United Kingdom 240; France 188.

See footnotes at end of table.

Table 3.—Spain: Imports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986	
			United States	Other (principal)
METALS —Continued				
Mercury ---------- 76-pound flasks	31	551	NA	Netherlands 261; China 145; U.S.S.R. 87.
Molybdenum:				
Ore and concentrate	4,600	5,236	578	Chile 3,375; United Kingdom 898.
Oxides and hydroxides	(2)	2	--	All from Belgium-Luxembourg.
Metal including alloys:				
Scrap	--	2	--	All from West Germany.
Unwrought	1	3	2	United Kingdom 1.
Semimanufactures	24	27	1	Austria 9; West Germany 5.
Nickel:				
Matte and speise	1,849	1,591	46	Canada 836; Norway 229; Australia 221.
Oxides and hydroxides	24	16	--	Canada 13; Belgium-Luxembourg 3.
Ash and residue containing nickel	121	209	53	France 89; West Germany 67.
Metal including alloys:				
Scrap	8	15	--	France 10; Republic of South Africa 2; United Kingdom 1.
Unwrought	3,780	4,864	3	Canada 1,554; U.S.S.R. 1,546; Zimbabwe 567.
Semimanufactures	1,118	865	17	West Germany 395; Sweden 97; United Kingdom 87.
Platinum-group metals:				
Waste and sweepings value, thousands	$7,342	$5,054	$469	United Kingdom $1,196; Costa Rica $875; Mexico $694.
Metals including alloys, unwrought and partly wrought ------ do	$3,127	$9,718	$43	United Kingdom $3,739; Republic of South Africa $1,766; France $1,647.
Rare-earth metals including alloys, all forms	11	43	6	United Kingdom 26; Brazil 6.
Rhenium: Metal including alloys, all forms	1	(2)	(2)	Mainly from Netherlands.
Selenium, elemental	46	83	--	United Kingdom 35; Canada 22; Switzerland 11.
Silicon, high-purity	23	1	1	
Silver:				
Ore and concentrate[3] value, thousands	$18,901	$31,864	$312	Papua New Guinea $24,759; Mexico $2,614; Republic of South Africa $1,804.
Waste and sweepings ------ do	$34,045	$2,439	--	Panama $1,194; Switzerland $578; Peru $546.
Metal including alloys, unwrought and partly wrought ------ do	$4,217	$43,680	$1,119	United Kingdom $8,308; Sweden $7,269; France $5,686.
Tellurium, elemental	3	NA		
Tellurium, elemental and arsenic	--	16	(2)	Sweden 10; China 3; Peru 2.
Tin:				
Ore and concentrate	4,262	3,071	--	China 1,088; Zaire 1,014; Thailand 366.
Oxides	209	249	--	United Kingdom 177; Italy 45; West Germany 27.
Ash and residue containing tin	11	--		
Metal including alloys:				
Scrap	(2)	--		
Unwrought	253	1,576	--	United Kingdom 923; Netherlands 409; West Germany 122.
Semimanufactures	116	167	1	United Kingdom 69; West Germany 46; Portugal 30.
Titanium:				
Ore and concentrate	188,617	106,920	--	Australia 84,160; Malaysia 19,068; Republic of South Africa 2,623.
Oxides	1,073	1,336	1	West Germany 310; France 283; Belgium-Luxembourg 235.
Metal including alloys:				
Scrap	497	322	101	France 221.
Unwrought	322	368	198	United Kingdom 72; Austria 70.
Semimanufactures	309	1,018	164	United Kingdom 336; France 212; West Germany 194.
Tungsten:				
Oxides and hydroxides	--	1	--	All from West Germany.
Metal including alloys:				
Scrap	1	9	--	West Germany 8; France 1.
Unwrought	4	5	1	France 3; West Germany 1.
Semimanufactures	473	75	--	West Germany 15; Austria 7; unspecified 42.

See footnotes at end of table.

Table 3.—Spain: Imports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986: United States	Sources, 1986: Other (principal)
METALS —Continued				
Uranium and/or thorium:				
Ore and concentrate	27	47	--	Morocco 24; Austria 23.
Metal including alloys, all forms:				
Uranium	(2)	(2)	--	All from West Germany.
Thorium	--	(2)	--	All from United Kingdom.
Vanadium:				
Oxides and hydroxides	145	117	(2)	Republic of South Africa 70; Netherlands 24; China 23.
Metal including alloys, unwrought	--	(2)	--	All from West Germany.
Zinc:				
Ore and concentrate	34,950	34,615	--	Ireland 16,111; Peru 9,914; Canada 5,377.
Oxides	412	706	--	Portugal 319; West Germany 310; France 41.
Blue powder	77	176	1	West Germany 166; Belgium-Luxembourg 8.
Matte	3,018	3,127	184	France 1,352; West Germany 600; Algeria 355.
Ash and residue containing zinc	2,294	6,131	40	West Germany 2,892; France 1,850; Italy 903.
Metal including alloys:				
Scrap	252	1,326	--	France 1,116; United Kingdom 84; Belgium-Luxembourg 80.
Unwrought	1,730	7,174	--	Belgium-Luxembourg 3,144; France 1,930; Netherlands 1,277.
Semimanufactures	727	730	--	West Germany 334; Belgium-Luxembourg 279; United Kingdom 50.
Zirconium:				
Ore and concentrate	37,210	25,813	5	Republic of South Africa 14,738; Australia 11,0[illegible]4; United Kingdom 40.
Metal including alloys:				
Unwrought	(2)	(2)	--	All from West Germany.
Semimanufactures	1	1	(2)	Mainly from France.
Other:				
Ores and concentrates	(2)	4	--	Australia 3; Morocco 1.
Oxides and hydroxides	98	207	(2)	France 83; Belgium-Luxembourg 63; United Kingdom 35.
Ashes and residues	6,461	6,312	17	Italy 4,395; West Germany 1,529; Australia 235.
INDUSTRIAL MINERALS				
Abrasives, n.e.s.:				
Natural: Corundum, emery, pumice, etc	1,763	2,890	10	Greece 1,341; Italy 1,044; France 253.
Artificial:				
Corundum	5,589	5,742	59	Austria 1,448; France 1,424; West Germany 1,350.
Silicon carbide	2,450	2,620	(2)	West Germany 1,100; Norway 533; Italy 335.
Dust and powder of precious and semi-precious stones including diamond value, thousands	$4,111	$4,904	$815	Ireland $3,704; West Germany $140.
Grinding and polishing wheels and stones	1,546	3,831	14	West Germany 1,277; France 1,009; Italy 946.
Asbestos, crude	38,022	43,874	146	Canada 19,764; Zimbabwe 15,577; Italy 4,005.
Barite and witherite	261	1,238	--	Sweden 920; France 203; Morocco 96.
Boron materials:				
Crude natural borates	78,288	99,510	36,297	Turkey 63,175; United Kingdom 21.
Elemental	(2)	(2)	(2)	
Oxides and acids	390	443	--	Italy 257; France 144; Belgium-Luxembourg 22.
Bromine	165	45	--	Israel 37; France 8.
Cement	5,443	76,115	4	Tunisia 61,003; Morocco 4,309; France 3,165.
Chalk	9,818	12,788	--	France 12,541; West Germany 169; Belgium-Luxembourg 67.
Clays, crude:				
Bentonite	31,913	27,361	1,891	Morocco 18,919; Greece 3,730.
Chamotte earth	6,394	5,951	1,873	France 3,954; West Germany 106.
Fuller's earth	19	2,978	113	West Germany 1,298; Belgium-Luxembourg 1,077.
Kaolin	188,449	177,730	15,130	United Kingdom 139,496; France 17,728; West Germany 4,374.
Unspecified	22,946	21,481	116	United Kingdom 11,916; France 8,021; West Germany 847.

See footnotes at end of table.

Table 3.—Spain: Imports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986	
			United States	Other (principal)
INDUSTRIAL MINERALS —Continued				
Cryolite and chiolite	75	690	--	Denmark 680; France 10.
Diamond:				
Gem, not set or strung value, thousands	$25,736	$6,283	--	Belgium-Luxembourg $5,235; Netherlands $458; Israel $319.
Industrial stones do.	$1,823	$1,382	$8	Zaire $525; Belgium-Luxembourg $243; Ghana $193.
Diatomite and other infusorial earth	2,742	3,355	1,013	France 1,934; Iceland 245.
Feldspar, fluorspar, related materials:				
Feldspar	18,403	19,830	--	France 18,373; West Germany 655; Portugal 260.
Fluorspar	158	44	--	France 43; West Germany 1.
Unspecified	1,672	2,416	--	Canada 1,512; Norway 855; France 45.
Fertilizer materials:				
Crude, n.e.s	851	1,568	34	Netherlands 1,030; France 254; Italy 210.
Manufactured:				
Ammonia	705,395	782,114	78,340	U.S.S.R. 263,557; Libya 63,103.
Nitrogenous	106,315	599,926	(2)	Italy 113,947; Netherlands 99,687; Libya 88,793.
Phosphatic	8,867	55,624	13,941	Israel 20,307; Tunisia 11,669.
Potassic	1,790	12,643	37	Israel 8,747; United Kingdom 1,553; Jordan 1,500.
Unspecified and mixed	49,858	291,056	78,184	West Germany 52,989; Morocco 33,998.
Graphite, natural	2,519	3,993	--	Mexico 999; China 910; West Germany 895.
Gypsum and plaster	19,056	30,985	33	Morocco 30,289; United Kingdom 427; France 150.
Iodine	215	228	--	Japan 27; Chile 1; unspecified 200.
Kyanite and related materials	3,327	5,284	451	Republic of South Africa 3,400; France 814.
Lime	330	404	--	West Germany 310; France 62; Japan 18.
Magnesium compounds:				
Magnesite, crude	26	5	--	United Kingdom 4; Austria 1.
Oxides and hydroxides	66,982	62,480	151	Greece 21,185; Italy 12,804; North Korea 6,605.
Other	272	264	--	All from France.
Mica:				
Crude including splittings and waste	4,002	2,602	3	Zimbabwe 657; India 461; Sweden 460.
Worked including agglomerated splittings	142	528	73	West Germany 319; France 56; Belgium-Luxembourg 36
Nitrates, crude	24,056	25,050	--	All from Chile.
Phosphates, crude thousand tons	2,775	3,701	--	Morocco 3,116; Senegal 210; Togo 91.
Phosphorus, elemental	225	302	28	Canada 172; West Germany 39; U.S.S.R. 34.
Pigments, mineral:				
Natural, crude	314	231	--	West Germany 141; United Kingdom 36; France 29.
Iron oxides and hydroxides, processed	5,896	6,237	7	West Germany 4,814; France 656; Italy 435.
Precious and semiprecious stones other than diamond:				
Natural value, thousands	$5,832	$3,740	$9	Thailand $1,645; India $508, West Germany $402.
Synthetic do.	$5,193	$5,958	$696	Ireland $1,236; Switzerland $1,195; Repbublic of Korea $1,134.
Pyrite, unroasted	356	253	--	France 141; Italy 112.
Salt and brine thousand tons	619	5,155	4	Belgium-Luxembourg 4,001; United Kingdom 531; Netherlands 516.
Sodium compounds, n.e.s.:				
Carbonate, manufactured	143	403	(2)	France 401; United Kingdom 1.
Sulfate, manufactured	386	NA		
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked	147,945	164,181	320	Portugal 51,296; Italy 41,607; Finland 30,800.
Worked	7,736	14,570	21	Portugal 7,280; Italy 5,502; France 1,014.

See footnotes at end of table.

Table 3.—Spain: Imports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986	
			United States	Other (principal)
INDUSTRIAL MINERALS —Continued				
Stone, sand and gravel —Continued				
Dolomite, chiefly refractory-grade	9,865	12,263	--	France 6,152; Belgium-Luxembourg 5,563; Norway 248.
Gravel and crushed rock	46,082	60,484	--	Morocco 44,679; France 14,553; United Kingdom 756.
Quartz and quartzite	7,849	2,501	4	Sweden 1,115; West Germany 798; Belgium-Luxembourg 341.
Sand other than metal-bearing	55,143	40,472	94	France 24,941; Morocco 12,932; West Germany 1,094.
Sulfur:				
Elemental:				
Crude including native and by-product	71,254	43,079	--	France 41,650; West Germany 1,360; Portugal 68.
Colloidal, precipitated, sublimes	60	37	(2)	West Germany 26; France 11.
Dioxide	23	3	--	Turkey 2; Belgium-Luxembourg 1.
Sulfuric acid	6,147	35,744	--	Italy 15,615; United Kingdom 12,885; France 6,083.
Talc, steatite, soapstone, pyrophyllite	11,682	13,662	197	France 9,201; Belgium-Luxembourg 1,363; Norway 1,352.
Vermiculite, perlite, chlorite	41,156	16,909	--	Turkey 7,930; U.S.S.R. 6,396; Republic of South Africa 2,427.
Other:				
Crude	20,073	21,823	1,077	Morocco 5,400; Norway 3,348; Italy 1,770.
Slag and dross, not metal-bearing	3,194	5,073	2,550	France 1,715; West Germany 665.
MINERAL FUELS AND RELATED MATERIALS				
Asphalt and bitumen, natural	514	702	578	United Kingdom 121; France 2.
Carbon:				
Carbon black	3,873	5,155	148	France 2,597; West Germany 1,106; Netherlands 1,069.
Gas carbon	17,608	17,597	263	France 14,014; Portugal 531; West Germany 495.
Coal:				
Anthracite thousand tons	6	28	--	All from Republic South Africa.
Bituminous do.	8,412	8,687	2,220	Republic of South Africa 4,051; Australia 1,738.
Briquets of anthracite and bituminous coal do.	(2)	(2)	--	All from Italy.
Lignite including briquets do.	140	146	--	East Germany 144; France 2.
Coke and semicoke do.	214	198	46	Poland 51; France 31.
Gas, natural:				
Gaseous million cubic feet	(2)	(2)	--	All from Italy.
Liquefied thousand tons	1,909	1,987	--	Algeria 1,123; Libya 837.
Peat including briquets and litter	50,000	49,090	--	West Germany 40,363; Netherlands 5,458; United Kingdom 1,678.
Petroleum:				
Crude thousand 42-gallon barrels	319,436	325,745	--	Mexico 64,025; Libya 48,596; Iraq 46,887.
Refinery products:				
Liquefied petroleum gas do.	10,499	8,547	(2)	France 3,723; United Kingdom 1,404; Algeria 377.
Gasoline do.	12,911	17,271	(2)	Libya 4 755; Italy 1,735; Iraq 1,592.
Mineral jelly and wax do.	31	43	(2)	Portugal 10; Netherlands 9; United Kingdom 7.
Kerosene and jet fuel do.	291	573	6	Italy 356; Portugal 157; Ivory Coast 43.
Distillate fuel oil do.	8,484	11,472	3,737	U.S.S.R. 1,015; Italy 973.
Lubricants do.	629	531	175	France 151; Belgium-Luxembourg 51.
Residual fuel oil do.	13,170	12,536	1,225	Saudi Arabia 1,770; Netherlands 722; bunkers 2,100.
Bitumen and other residues do.	85	59	(2)	France 43; Portugal 15.
Bituminous mixtures do.	29	12	(2)	West Germany 3; United Kingdom 3; France 2.
Petroleum coke do.	4,581	9,571	9,091	United Kingdom 418; West Germany 48.

NA Not available.
[1]Table prepared by Josef Plachy.
[2]Less than 1/2 unit.
[3]May include other precious metals.

COMMODITY REVIEW

METALS

Aluminum.—Management at Aluminio Español S.A. (INESPAL), state-owned aluminum producer, curtailed operations at San Ciprian, the largest aluminum plant in Spain. Situated on the northwestern coast of the country, the facility incurred a 3-day wildcat strike by workers to protest the loading of toxic chemicals on the premises, despite an appeal by management to labor to stay on the job to maintain the potlines. Consequently, potline temperatures dropped below those levels at which aluminum could be recovered, and all 512 pots along with the 2 potlines were damaged. Reportedly, repairs to the 180,000-ton-per-year electrolytic production facility would require a $172 million expenditure and a 6-month completion time. To offset output losses, INESPAL began to import 6,000 tons per month of aluminum to meet contractual obligations. Costs of the damage were offset, in part, by the dismissal of more than 100 workers who failed to return to work in time to save the pots.

Copper.—In December 1987, RTM signed an agreement with various socialist trade unions and the Andalusian Government not to close the Huelva copper mines in southern Spain in 1988. Production was halted there earlier in 1987 as a result of the high cost of extracting copper from low-grade ores and RTM's consequent inability to repay $152 million in debt to its bankers.

RTM agreed to operate the Huelva facilities on a care-and-maintenance basis until yearend 1988. At that time, the company would reopen and run the mines at a low output, provided that the 3-month forward price for copper on the London Metal Exchange equaled or exceeded $793.18 per ton for a 3-month period. In addition, workers would continue to receive full salary in 1988, with those 55 years of age or older offered the option of early retirement.

However, in light of the drop in annual copper mine production from 61,000 tons in 1985 to 51,084 tons in 1986 and to approximately 15,000 tons in 1987, RTM was expected to shift the focus of its operations at Huelva from mining to smelting ore received from the Neves-Corvo copper mine in Portugal, in which RTM's parent company, RTZ Corp. PLC, has a 49% interest. RTM is itself owned 49% by RTZ and 51% by the Spanish Government.

In a move to reduce expenses, Centrimetal, a foundry near Bilbao in northern Spain, concluded a deal with Inductotherm Europe (Droitwich, United Kingdom) for an induction melting plant in late 1987. The plant was to consist of four Duraline tilting furnaces with a 500-kilogram capacity, powered by a 350-kilowatt, 100-hertz inverter. The new equipment could melt copper and copper alloys utilizing less time and energy than the oil-fired furnaces that the induction furnaces would replace.

Ferroalloys.—In March, Ferroaleaciones y Electrometales (Fyesa) reopened its Santander facility on the northern Spanish coast, after suspending operations for 3 months to restructure its sales and distribution activities. Although expected plant output at 50% of full capacity was to equal the 40,000 tons of silicomanganese and 30,000 tons of high carbon ferromanganese produced in 1985 and 1986 together, output was marketed only to domestic consumers in 1987. Concomitantly, Fyesa sought to cut its work force from 294 to 150. The company was said to be approaching the problem by offering either early retirement to its older workers or bonuses to redundant employees who resigned.

The restructuring at Fyesa was reflective of the general situation facing Spain's ferroalloys industry. High labor and energy expenditures severely diminished the ability of many of the country's producers to compete efficiently against low-cost ferroalloy makers such as Brazil and Venezuela. The situation was further exacerbated by EEC provisions enjoining the Spanish Government from subsidizing the industry. As a result, the country's ferroalloy producers began negotiations with the Spanish Government to identify alternative remedies that included furnace closure. It was expected that the restructuring process would be modeled closely on the rationalization and reduction undertaken by the steel industry the previous year.

Iron and Steel.—Negotiations between the Spanish steel producers and state officials resulted in a restructuring package approved by the Spanish Government. The package stipulated cuts of 4 million tons in steel productive capacity in 1987-88. Of those reductions, 3.3 million tons was mandated by Spain's EEC accession agreement.

As an incentive to meet the capacity goals, the Spanish Government offered $1.8 billion to strengthen the financial position of the steel industry, generally, and to soften the effects of layoffs at Acenor, AHV, ENSIDESA, and Forjas y Aceros de Reinosa S.A. (Forasa), specifically.

Acenor's SA Echevarria subsidiary overhauled its Forjas Basural works. Production of bar-in-coil at that facility was terminated and transferred to Forjas Alavesas. Although specific numbers were not ascertained, layoffs were considered probable and proportionate to the $237.8 million allocated by the Spanish Government for the purpose of downsizing operations. At the same time, the company intended to emphasize production of medium-size special steel bars, and it invested $24.2 million in improving Basurai's six-strand continuous caster.

AHV closed its bar mill and reduced sinter operations at Sestao, leaving the company to center its production on flat-rolled products. The closures resulted in work force reductions of 1,800. An additional 1,800 workers were scheduled to be offered either early retirement or redundancy pay. Reportedly, the company would not pursue reduced output of its flat-rolled products because demand for those items exceeded current supply and was expected to exceed supply in the foreseeable future. Further, the situation created potential displacement of AHV output by imports.

ENSIDESA temporarily closed its reinforcing bar operation at the Verina works, with a view toward permanent closure by yearend 1987. A shutdown of the 250,000-ton-per-year rebar mill would involve a loss of 300 jobs and would mark ENSIDESA's withdrawal from rebar production, leaving it to produce wire rod, of which it is capable of producing 480,000 tons annually. Private long products companies, minimills, and independent steel producers welcomed the shutdown as an important step in eliminating overcapacity in the steel products sector. ENSIDESA was eligible for subsidies and was expected to garner as much as $554.8 million of the official aid earmarked for the Spanish steel industry.

Forasa, Acenor's chief competitor in special steel and forging production, restructured its operations by eliminating 463 jobs at its Reinosa facility in northern Spain. Of the remaining 1,713 positions, an additional 402 were scheduled to be cut. No plans were announced regarding reduction of the then-current annual capacity of 150,000 tons. Concurrent with the downscaling of its labor force, Forasa received $63.9 million in Government aid that would assist in restructuring the company's debt burden.

Among the three big minimill works participating in the rationalization plan, Siderúrgica Sevillana (Riva Group) proposed the closure of the Dos Hermanas works of its subsidiary, Sidesur. The plant has a mill with an annual capacity of 971,000 tons of rebars and angles.

Consistent with its aim of scrapping 1.6 million tons of rolled products, Celsa planned to close the Sidegasa works as well as its rolling mill at its Castellbisball plant. Closure of those facilities would yield $69.2 million in Government aid that would work to reduce company debts of $96.7 million.

Orbegoz, the third minimill, proposed closure of the Lezo plant operated by its subsidiary Aceros Corrugados and a rolling mill at its Zumarraga works. The shutdowns would leave the works with a single electric furnace, two rolling mills, and one wire works. Annual productive capacity of raw steel would be reduced by 523,000 tons and rolled products by 383,000 tons. The closures were expected to net Orbegoz $85.8 million to be used, in part, to compensate laid-off workers.

Apart from the incentives it offered the steel industry to curb its productive capacity, the Spanish Government continued to invoke a "safeguard clause" within its agreement with the EEC, allowing Spain to impose ceilings on imported hot- and cold-rolled coil, hot-dipped galvanized sheet, and wire rod. The Government also restricted imports of hot-rolled coil from non-EEC nations by curtailing import licenses. Imports of hot-rolled coil from the U.S.S.R. were to be reduced from 25,000 tons to 4,000 tons. Elimination of an expected 20,000 tons from Canada and 35,000 tons from Turkey were under consideration. Motivating these actions were the fears of Spanish steel producers that the imports would displace domestically produced products. An additional source of concern was the possibility that EEC producers, whose exports were restricted under the safeguard clause, could attempt to penetrate the Spanish market via non-EEC market economy countries, a further detriment to domestic producers.

Lead.—Compañia La Cruz S.A., the Spanish lead producer, closed indefinitely its smelter at Linares, about 200 kilometers north of the Spanish port city of Málaga. Production at the 50,000-ton-per-year plant

was suspended as a result of the company's financial difficulties. Expecting to receive a sizable percentage of lead concentrate from the Aznalcollar Mine in southeastern Spain, La Cruz had invested in smelter modifications to handle the dirty concentrates of Aznalcollar. However, Sociedad Andalusa de Piritas S.A. (Apirsa), Aznalcollar's operator, contracted its entire annual output of 40,000 tons to Mark Rich, a competitor and trader in the lead market. Consequently, La Cruz had an insufficient supply of concentrates to sustain smelter production and was not able to recover its capital outlay. In addition, the prohibitive freight charges tied to the inland location of the Linares smelter, supply shortages, and attendant price inflation of foreign lead concentrates made importation of the material infeasible. Except for the small staff required to maintain equipment, nearly 350 employees were laid off as a result of the closure, and it was not expected that the facility would resume operations.

Mercury.—MAYASA discovered a mercury deposit able to produce 135,000 flasks of mercury. Exploitable reserves amounted to 21,000 tons. The new mine, situated at Almadén in southern Spain, will replace the company's depleted ore body at the same site and will increase the country's mercury reserves to 2.2 million flasks.

The new facility, expected to begin production in approximately 3 years, contains ore with a relatively high mercury content of 20.5%, an amount sufficient to reduce extraction costs by more than one-half. Compared with expenditures of $190 per flask at the company's opencast Entredicho Mine and $300 per flask at its old Almadén operation, costs at the new mine should average $87 per flask. It was expected that reduced production costs would result in a commensurate price drop from $300 per flask for MAYASA's mercury. Set in agreement with Algeria's Entreprise Nationale des Non-ferreux et Substances Utiles (ENOF) during the first quarter of 1987, the $300 quote was said to reflect the floor below which the Spanish mercury producer lost $4 million on sales the previous year. Market prices for mercury reached a low of $175 per flask in February 1987.

Reportedly, at yearend 1987, MAYASA began operating a 15,000-flask-per-year mercury recovery plant, designed to process mercury residues such as those captured in zinc processing. The plant, the largest of its type in Europe, was scheduled to employ 25 to 30 people, with annual output amounting to the total quantity of mercury residues recovered in Europe by similar processes from 1981 to 1986. The 15,000 flasks produced for domestic consumption were to be offset by an equal cut in primary metal production.

Polymetallics.—Boliden AB, the Swedish mining concern, purchased Apirsa from Banco Español for an undisclosed sum. The deal gave Boliden 100% ownership of Apirsa's Aznalcollar Mine, whose annual output amounts to 50,000 tons of zinc, 20,000 tons of lead, and 6,000 tons of copper. The ore body is a geological extension of the ore body on which the Neves-Corvo copper mine in Portugal has been developed. It was expected that the mine would continue output of a rate of 2 million tons per year into the 1990's. Zinc accounted for 50% of the mine's revenue. Reportedly, the Spanish facility would help replace the zinc concentrate supplies at Boliden's Black Angel Mine in Greenland, where supplies were expected to run out by mid-1988. It was also expected, however, that Boliden would not necessarily use Aznalcollar output to feed its smelters to the exclusion of export sales.

Tin.—During the second quarter of 1987, it was announced that Spain's only remaining tin mines would close permanently, the result of continued low tin prices. Minera-Adelaide curtailed production at its La Parilla tin-tungsten mine near Cáceres earlier in the year as a result of flooding complications. In 1986, La Parilla produced about 120 tons of tin and 45 tons of tungsten. Minas de San Finx S.A., near La Coruña, halted operations by yearend 1987. In recent years, annual output at San Finx averaged 110 tons.

Zinc.—During the first half of 1987, Asturiana de Zinc lost $12.6 million. Compared with the same period in 1986, the net loss was 5.3% greater on sales revenues that were 12% higher. The poor performance resulted from high energy tariffs and a lower exchange rate for the U.S. dollar, which cut the domestic price for zinc.

Reportedly, however, a number of parties expressed an interest in acquiring all or some part of the company, not only for the Aviles refinery but also Asturiana de Zinc's mining interests. These include the 150,000-ton-per-year Reocin Mine at Santander, as well as a 30% share in Exploracion Minera Internacional España S.A. (EXMINESA), which runs the 70,000-ton-per-year Rubiales operation at Lugo and the 40,000-ton-per-year La Troya facility, 30 kilometers south of San Sebastián.

INDUSTRIAL MINERALS

Clays (Kaolin).—In July 1987, ECC Overseas Investments Ltd., a subsidiary of English China Clays PLC, United Kingdom, acquired a 75% share in Caosil S.A. for an undisclosed sum. Caosil quarries a mixed kaolinitic sand deposit at Peñalen in Guadalajara for wet processing at Villanueva de Alcoron. The kaolin extracted from the facility is marketed primarily to the ceramics and paper industries. The coarse and wet-milled sand is sold for bottle glass manufacture. In 1987, the Peñalen operation had an annual production capacity of about 36,500 tons, with output measured at about 25,000 tons. In addition, two grades of silica sand were produced at an annual rate of 95,000 tons, classified sand grading 98.2% SiO_2, 0.012% Fe_2O_3.

Magnesite (Dolomite).—Empresa Auxiliar de la Industria S.A. was expected to invest $207,400 in an evaluation of the possibilities for extracting magnesite from dolomite being mined at 10 sites at Granada in southern Spain. The value of the dolomite mineral was expected to increase significantly if it became a source for magnesite production. Additional investments of $153,600 and $57,600 each by the Andalusian regional government and the Provincial authority of Granada were to supplement Empresa Auxiliar's outlay.

Sodium Sulfate.—Foret S.A., Spanish subsidiary of FMC Corp., bought the natural sodium sulfate operation of Union Salinera de España S.A. The purchase included a combined glauberite-thenardite deposit at Castellar, Villarrubia de Santiago, in Toledo Province, as well as a 150,000-ton-per-year plant recently modernized to incorporate dissolution and vacuum evaporation technology. The new process, essentially a steam recycling system, consumes less energy than the submersion-combustion heating approach that preceded it. Reportedly, the sodium sulfate acquisition would meld synergistically with Foret's other activities, particularly supplying the domestic paper and detergent industries with chemical raw materials.

MINERAL FUELS

Coal.—In March 1987, 25 coal mines were shut down as a majority of the 21,000 coal miners employed by the Spanish coal producer Hunosa Co. either stayed home or picketed the Oviedo facilities, situated in Spain's northern Asturias region. The walkout was in protest of Hunosa's plan to eliminate 2,000 jobs by yearend 1988 and an additional 6,000 jobs by 1990. Simultaneously, Hunosa, whose output reportedly was 3.5 million tons of coal, planned a 5% increase in productivity from 1987 to 1993 via modernized equipment and more efficient management techniques.

Hunosa's rationalization plan was somewhat reflective of a broader effort by Spain's coal industry to consolidate many small producers into a few large corporations as a means of lowering costs and raising output. In 1987, only 43 of Spain's 223 coal mines produced more than 100,000 tons of coal per year. Another 47 companies accounted for 9.9% of the country's coal production, while the remaining 133 posted 5.4% of total output. Of that production, 92% was consumed by the country's electric power stations, 5% by the steel industry, and 3% by miscellaneous users.

Natural Gas.—In November 1987, Enegas, Spain's gas distribution company, signed a letter of intent promising to purchase natural gas from Soyuzgasexport, the Soviet natural gas enterprise, beginning in 1992. Purchases of between 1 to 1.5 billion cubic meters of gas were scheduled. Under one scenario, 500 million cubic meters would be bought in 1992, followed by an increase to 1 billion cubic meters between 1993 and 1998. By 2004, annual purchases would amount to 1.5 billion cubic meters. Unsolved, however, were the pricing formula and the route by which the gas would travel from the U.S.S.R. to Spain. One reported transportation possibility was through Spain's planned link to the European gas grid through the French pipeline network. Spain reportedly was negotiating a pipeline connection with Gaz de France as a means of receiving 1 billion cubic meters of gas per year from Norway's Troll and Sleipner North Sea oilfields beginning in 1990. The planned linkup was part of Spain's diversification effort to avoid sole reliance on Algeria for gas. Spain's natural gas contract with its other supplier, Libya, expires at the end of 1989.

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[1]Physical scientist, Division of International Minerals.

[2]Where necessary, values have been converted from Spanish pesetas (Ptas) to U.S. dollars at the rate of Ptas123.48 = US$1.00, the average rate in 1987.

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